

Pow-R-Command 3000 Lighting Power Reduction Panel

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Certified Test Reports

As part of their due diligence in the energy savings incentive process, Southern California Edison suggested the PRC3000 Lighting Power Reduction Panel be submitted to Lighting Sciences Inc. (LSI) for savings validation testing. The purpose of this test was to verify that the PRC3000 Lighting Power Reduction Panel does, in fact, save approximately 15% of the electric power normally consumed by T8 fluorescent lighting systems.

For the testing, LSI was provided with five different ballasts. Four are from the world's largest ballast manufacturers and one is from a contract manufacturer of ballasts headquartered in Taiwan with manufacturing in China. The ballasts from the four top brands are of current design; universal voltage; readily available; of differing ballast factors; and meet utilities' requirements for rebate when used in a T12 to T8 retrofit. They were chosen to illustrate that the technology used in the PRC3000 Lighting Power Reduction Panel is nearly universal.

The testing shows that the PRC3000 Lighting Power Reduction Panel saved approximately 15% of the energy required to run the test system.

For each ballast, the PRC3000 Lighting Power Reduction Panel was set as close to a savings of 15% as possible and tested. Here is a summary of the results.

The results clearly show the PRC3000 Lighting Power Reduction Panel saves between 14.2% and 15.6% of the watts consumed while barely impacting Total Harmonic Distortion (THD). The changes in THD run from a reduction of 0.11% to an increase of 0.14%. The maximum THD readings in Savings mode was with the Universal ballast and, at 2.56% THD, is more than acceptable. Proprietary treatment of harmonics is the basis for the PRC3000 Lighting Power Reduction Panel pending U.S. and world patents.

At 15% savings, some depreciation of light output (as measured in foot-candles at the floor) should be expected. Based on field testing, the range of light loss for the five ballasts tested by LSI, and summarized above, runs from 2.9% to 7.9%. Even at a foot-candle loss of 7.9%, with a 15% savings in watts consumed, it is easy to see that the efficacy (foot-candles per watt) of the system is improved by the use of the PRC3000 Lighting Power Reduction Panel.

The following pages show a copy of LSI's detailed test report.

Ballast Mfg.	Ballast Model	Parameter	Reading In "Bypass"	Reading in "Savings"	Difference
Universal	B2321UNVHP-B	Watts THD	58.9 W 2.49%	49.8 W 2.56%	-15.5% +0.07%
GE	GE-232-MAX-H/ULTRA	Watts THD	76.0 W 2.52%	65.0 W 2.41%	-14.5% -0.11%
Advance	IOP-2P32-LW-SC	Watts THD	50.8 W 2.26%	43.6 W 2.40%	-14.2% +0.14%
Antron	EPD-A32T8M	Watts THD	62.1 W 2.47%	52.4 W 2.36%	-15.6% -0.11%
Sylvania	QTP2X32T8/UN V ISN-SC	Watts THD	61.2 W 2.37%	51.9 W 2.43%	-15.2% +0.06%



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Pow-R-Command 3000 Lighting Power Reduction Panel

Industry Application IA01412001E

Effective November 2008

Certified Test Report 23411

- Savings validation test of power control system PRC3000 Lighting Power Reduction Panel – Model: PRC3000-060-120
- System set up as instructed by Eaton Procedure as instructed by Eaton
- Input to device set up at 120 volt ac operating one light fixture supplied by PRC3000 Lighting Power Reduction Panel with white reflector and no lens, two 100-hour Philips F32T8 fluorescent lamps.
- All testing done in ambient temperature of 25°C ± 2°C (Per IES standards)
- All testing done with one-hour stabilization times (Not to IES standards)
- Power measurements were take with Yokogawa Model WT110 digital power meters
- Power reductions were achieved by measuring the fixture wattage when operating at full power and subtracting 15% then adjusting the PRC3000 Lighting Power Reduction Panel operating program until the desired reduction was obtained to the fixture power value

Five different makes of ballasts were tested; the results for each are as follows:

Ballast – Universal Model: B232IUNVHP-B

PRC3000 Lighting Power Reduction Panel unit set to full power – setting 100.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

58.9	Watts
120.0	Volts ac
0.494	Amps
0.922	Power factor
2.49%	Total harmonic distortion

PRC3000 Lighting Power Reduction Panel unit set to 15% power reduction – setting 52.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

49.8	Watts
120.0	Volts ac
0.632	Amps
2.56%	Total harmonic distortion

Savings validated @ 15.5%

Ballast – General Electric Model: GE-232-MAX-H/ULTRA

PRC3000 Lighting Power Reduction Panel unit set to full power – setting 100.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

76.0	Watts
120.0	Volts ac
0.644	Amps
0.985	Power factor
2.52%	Total harmonic distortion

PRC3000 Lighting Power Reduction Panel unit set to 15% power reduction – settings 51.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

65.0	Watts
120.0	Volts ac
0.784	Amps
2.41%	Total harmonic distortion

Savings validated @ 14.5%

Ballast – Advance Model: IOP-2P32-LW-SC

PRC3000 Lighting Power Reduction Panel unit set to full power – setting 100.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

50.8	Watts
120.0	Volts ac
0.424	Amps
0.995	Power factor
2.26%	Total harmonic distortion

PRC3000 Lighting Power Reduction Panel unit set to 15% power reduction – setting 50.5

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

43.6	Watts
120.0	Volts ac
0.514	Amps
2.40%	Total harmonic distortion

Savings validated @ 14.2%



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Ballast – Antron Model: EPD-A32T8M

PRC3000 Lighting Power Reduction Panel unit set to full power – setting 100.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

62.1	Watts
120.0	Volts ac
0.518	Amps
0.997	Power factor
2.47%	Total harmonic distortion

PRC3000 Lighting Power Reduction Panel unit set to 15% power reduction – settings 48.5

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

52.4	Watts
120.0	Volts ac
0.728	Amps
2.36%	Total harmonic distortion

Savings validated @ 15.6%

Ballast – Sylvania Model: QTP2X32T8/UNV ISN-SC

PRC3000 Lighting Power Reduction Panel unit set to full power – setting 100.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

61.2	Watts
120.0	Volts ac
0.506	Amps
0.994	Power factor
2.37%	Total harmonic distortion

PRC3000 Lighting Power Reduction Panel unit set to 15% power reduction – setting 56.0

Electrical measurements at input to PRC3000 Lighting Power Reduction Panel system:

51.9	Watts
120.0	Volts ac
0.577	Amps
2.43%	Total harmonic distortion

Savings validated @ 15.2%



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